TITLE: CARABINER WITH AN ILLUMINATOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is related to a carabiner with an illuminator, and especially to a carabiner with an illuminator of which the carabiner has a receiving chamber for receiving therein an illuminating set, an elastic element and a pushing member, for the purpose of forming the carabiner with an illuminator providing an effect of illumination.

2. Description of the Prior Art

A U.S. patent application with a serial number of 10/284,261 filed by the inventor of the present invention on October 31, 2002 before the PTO of U.S.A. claiming a "Carabiner" which is formed in a main body of the carabiner a receiving chamber to receive therein an electrically conductive elastic element, a battery assembly is placed in the receiving chamber in the main body in sequence, and a lamp cap is screwed up onto the opening of the receiving chamber, the depth of screwing up onto the opening determines displacement of the lamp cap relative to the main body to control illumination/extinguishment of a lamp bulb.

The main body of the carabiner is made of metal with good electric conductivity, by the good electric conductivity, the lamp cap can get the function of controlling illumination/extinguishment of the lamp bulb because of the electric connecting among the electrically conductive elastic element, the battery assembly and the main body of the carabiner.

Such a "Carabiner" thereby gets the function of controlling of illumination and extinguishment of the lamp bulb mainly by the good

conductivity of the main body of the carabiner that makes electric current conduction with the battery assembly and the electrically conductive elastic element.

SUMMARY OF THE INVENTION

In view that electric conduction for making illumination and extinguishment of the abovementioned "Carabiner" is limited to the fact that it can only be effected by means of the main body of the carabiner, and for the purpose of providing an carabiner with an illuminator that can provide the effect of electric conduction by means of an illuminating set, the inventor of the present invention developed the carabiner with an illuminator based on his professional experience of years in studying, designing and manufacturing same kind of products and after hard study, developing, as well as repeated experiments and tests.

Therefore, the carabiner with an illuminator of the present invention mainly is provided in a main body of the carabiner with a receiving chamber to receive sequentially therein an elastic element, a pushing member and an illuminating set. The pushing member is provided on the bottom in the receiving chamber; the main body of the carabiner is made of material with no electric conductivity, and has a rotating member provided on and locked onto the opening of the front end of the receiving chamber, thereby when the rotating member on the opening is rotated, it makes displacement of the illuminating set in the receiving chamber. Therefore, by press abutting of the pushing member on the illuminating set, turning on/off of the illuminating set can be controlled, and thus illumination/ extinguishment of a lamp bulb can be controlled too.

The object of the present invention is: by press abutting action of the pushing member on the illuminating set, turning on/off of the lamp bulb on the illuminating set can be controlled, and thus illumination/ extinguishment of a lamp bulb can be controlled without transmitting via the main body of the carabiner.

The present invention will be apparent in its content and effects after reading the detailed description of the preferred embodiment thereof in reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an analytic perspective view showing the elements of the present invention;

Fig. 2 is an analytic perspective view showing the elements of an illuminating set of the present invention;

Fig. 3 is a first sectional schematic view of the present invention;

Fig. 4 is a second sectional schematic view of the present invention;

Fig. 5 is a sectional view of another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring firstly to Figs. 1, 2 and 3, the carabiner with an illuminator of the present invention comprises a main body of the carabiner 10, a pushing member 20, an elastic element 30, an illuminating set 40 and a lamp cap 50.

Wherein the carabiner main-body 10 is made of material with no electric conductivity (such as plastic), it includes a shank 11 and two mutually opposite bended rod-portions 111, 112 integrally formed on the

two ends of the shank 11, the two bended rod-portions 111, 112 form therebetween an opening 113. The end of the bended rod-portion 111 is provided with a pivotally connected engaging member 12 for locking to engage with the other bended rod-portion 112 to make closing of the opening 113. The above stated structure of the carabiner belongs to the prior art and is not the key matter of the present invention; it will not be further narrated hereinafter. The carabiner main-body 10 is provided in its shank 11 on an end thereof remote from the bended rod-portion 111 with a receiving chamber 13; the receiving chamber 13 has a bottom surface 131, and a peripheral inner wall 132 as well as a receiving mouth 133 both perpendicular to the bottom surface 131. The shank 11 has on the external wall thereof near to the receiving mouth 133 a connecting portion 134 (it is depicted as an external thread in the present invention).

The pushing member 20 has a sectional area slightly smaller than that of the receiving mouth 133 of the receiving chamber 13 and can be received in the receiving chamber 13, one end of it is abutted on the bottom surface 131 of the receiving chamber 13, while the other end is provided with a pusher rod 21.

The elastic element 30 has a sectional area slightly smaller than that of the receiving chamber 13 and can be received in the receiving chamber 13; one end of it is extended over the pusher rod 21 to abut on the end face of the pushing member 20.

The illuminating set 40 (referring to Fig. 2) is received in the receiving chamber 13 with one end thereof pressing against the elastic

element 30. The illuminating set 40 further has a housing 41, a battery assembly 42, an electrically conducting sheet 43 and a lamp bulb 44. The housing 41 is a hollow pipe, the battery assembly 42 is received therein (in the present invention, there are a plurality of batteries provided in series); the external wall of the housing 41 has a slit 411 to receive the electrically conducting sheet 43. The electrically conducting sheet 43 is provided on an end in confronted with the battery assembly 42 with a press-abutting piece 431; while is connected on the other end with a pin of the lamp bulb 44. The lamp bulb 44 is provided exteriorly of the housing 41 with this pin thereof connected with the electrically conducting sheet 43, the other pin thereof is connected with the battery assembly 42.

The lamp cap 50 is a hollow cover, of which one end is provided with a connecting portion 51 (it is depicted as an internal thread in the present invention) in correspondence with the connecting portion 134 of the carabiner main-body 10, so that it can be locked on the end of the receiving mouth 133 of the carabiner main-body 10; and the lamp cap 50 can allow the lamp bulb 44 of the illuminating set 40 to extend therein.

When in assembling, the pushing member 20 is firstly pushed into the receiving chamber 13 of the shank 11 to abut the pushing member 20 on the bottom surface 131 of the receiving chamber 13; and then the elastic element 30 and the illuminating set 40 are extended into the receiving chamber 13 to make the elastic element 30 extend over the pusher rod 21 of the pushing member 20 to abut on the end face of the pushing member 20. The end of the illuminating set 40 with the press-abutting piece 431

is abutted against the top end of the elastic element 30. Lastly, the lamp cap 50 is screw connected via its connecting portion 51 to the connecting portion 134 of the carabiner main-body 10, thus the assembling is completed.

As shown in Figs. 3 and 4 showing the lamp cap 50 is screw connected to the front end of the connecting portion 134 of the carabiner main-body 10, in the sectional view of Figs. 3, the lamp bulb 44 has not yet been lightened. At this time, the illuminating set 40 is pressed by the elastic force of the elastic element 30 to make the press-abutting piece 431 not contact with the battery assembly 42; in this mode, the positive and negative electrodes of the lamp bulb 44 are unable to be electric connected, thereby the lamp bulb 44 is not lightened.

The lamp cap 50 is screwed in toward the carabiner main-body 10 to make the illuminating set 40 move along with the lamp cap 50 toward the interior of the receiving chamber 13; so that the illuminating set 40 presses inwardly against the elastic element 30 to render the pusher rod 21 of the pushing member 20 to push the press-abutting piece 431 toward the battery assembly 42. The press-abutting piece 431 thus presses against the battery assembly 42. At this time, the positive and negative electrodes of the lamp bulb 44 are electric connected with the positive and negative electrodes of the battery assembly 42 to make lightening of the lamp bulb 44, thereby the carabiner with an illuminator with an effect of illumination is formed.

In practicing the present invention, the carabiner main-body 10 and the pushing member 20 can also be made of metal with electric conductivity,

so that one pin of the lamp bulb 44 can surely contact with the pusher rod 21 of the pushing member 20 to effectively get the object of electric conduction of the lamp bulb 44.

Referring firstly to Fig. 5 showing another embodiment of the present invention, as is shown, the illuminating set 40 is composed of the housing 41, the battery assembly 42 and the lamp bulb 44, while the carabiner main-body 10 and the pushing member 20 are made of metal with electric conductivity. The pusher rod 21 of the pushing member 20 is directly pressed against the rear end of the battery assembly 42, the two pins of the lamp bulb 44 are respectively connected with the other end of the battery assembly 42 and the surrounding wall of the receiving chamber 13; so that when the pushing member 20 is pressed against the rear end of the battery assembly 42, by the electric conductivity of the surrounding wall of the receiving chamber 13, the two pins of the lamp bulb 44 are electrically connected with the battery assembly 42 to lighten the lamp bulb 44.

The names of the members composing the present invention are only for illustrating the technique of the present invention, and not for giving any limitation to the scope of the present invention. It will be apparent to those skilled in this art that various equivalent modifications or changes made to the elements of the present invention without departing from the spirit shall fall within the scope of the appended claims.